

**MICHIGAN DEPARTMENT  
OF  
TRANSPORTATION**

**Commercial Bus Inspection Procedure**  
January 2002

This manual is the procedure used by Bus Inspectors from the Michigan Department of Transportation (MDOT) to annually inspect all commercial buses. MDOT may alter from or change this procedure at any time to conform to all Federal Code of Regulations adopted by the Motor Bus Transportation Safety Act or other safety related items as MDOT deems necessary for safe operation. Every attempt has been made to include all items found during a safety inspection, however due to all the different body styles some items may not be identified in this procedure.

If the carrier operates in interstate commerce, under the requirements of the United States Department of Transportation Federal Highway Administration, this inspection shall serve as the carriers annual inspection requirement under C.F.R. 396.17.

The results of all vehicle inspections are recorded on a driver/vehicle examination report form in three (3) parts.

Part 1 (Yellow): If no defects or deficiencies are found, this part shall be maintained in the inspected vehicle and available for inspection upon demand of an authorized Federal, State or local official. If defects or deficiencies are found MDOT shall retain this part.

Part 2 (Pink): Shall be given to a company official upon completion of the inspection to be placed in the vehicle maintenance file.

If defects or deficiencies are found, the motor bus shall have failed the annual inspection requirement. No bus shall be operated over the highways of this state unless the motor bus has passed an annual inspection within the previous 12 months. After the repairs of all defects or deficiencies found, the carrier shall contact the department to arrange a reinspection of the motor bus.

Part 3 (White): shall be retained by MDOT.

Upon passing a vehicle, MDOT will affix a dated Michigan safety inspection decal and if the carrier is an authorized interstate carrier, a CVSA inspection decal will also be affixed in the proper location.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
COMMERCIAL BUS  
ANNUAL INSPECTION PROCEDURE

Complete the following information:

- a. General information.
- b. Vehicle identification.

Verify the vehicle registration with vehicle identification number (VIN) plate, and check and reject if:

- a. VIN plate is missing, defaced or not securely fastened.
- b. VIN is not in agreement with license plate registration, title or manufacturers statement of origin.
- c. License Plate is improper to the vehicle
- d. Certificate of Insurance is not present.

DRIVERS COMPARTMENT:

Drivers Seat and Seat Belts. Reject if:

- a. Steering wheel is loose or binds.
- b. Steering wheel has a spoke cracked through or missing.
- c. Steering wheel lash exceeds the following parameters:

Steering Wheel Diameter	Manual Steering System	Power Steering System
16" or less.....	2" +	4 1/2" +
18" .....	2 1/4" +	4 3/4" +
20" .....	2 1/2" +	5 1/4" +
22" .....	2 3/4" +	5 3/4" +

- d. Steering column is not securely fastened.
- e. Horn does not operate properly.
- f. Drivers or front seat passenger seat belts are missing or inoperative.

Accelerator, Clutch and Brake Pedal. Reject if:

- a. Pedals stick or bind.
- b. Failure to return.
- c. Power booster fails to operate. (Pump brake pedal to exhaust power assist supply and start engine with foot on brake pedal checking for power booster operation).
- d. Power steering brake pump assist fails to operate.

Windshield. Reject if:

- a. Glass is other than approved safety glass.
- b. Any non-transparent material obstructs or impairs drivers clear view of highway or any intersecting highway.
- c. Stone chips larger than a 25 cent piece are present within the wiper sweep area..
- d. Cracks extend above the height of the steering wheel or are more than 2" from the top of 1" from a side.
- e. Any windshield defect that could damage a windshield wiper blade.

Windshield Wipers and Washer Operation. Reject if:

- a. Windshield wipers do not operate as specified by the manufacturer or 45 cycles per minute.
- b. Wiper blades are torn, smear or streak windshield.
- c. Wipers do not clear windshield or washer fluid after 5 strokes.
- d. Washers do not operate.

Mirrors. Reject if:

- a. There is not one at each side located to reflect to the driver a clear vision of the highway.
- b. The glass is fogged, cracked or missing.
- c. Missing a convex type mirror on right side.

Heaters and Defrosters. Reject if:

- a. Defroster and blower are not capable of working as designed.
- b. Heater cores are leaking coolant.
- c. Heaters do not conform to C.F.R. 393.77.

Brake Warning devices and gauges. Reject if:

Hydraulic Brakes:

- a. A warning signal, audible or visible, fails to operate before or upon application of the brakes in the event of a complete failure of a partial system.

Air Brakes:

- a. A warning signal, audible or visible, fails to operate continuously whenever the pressure of the compressed air is below a specified pressure, which must be at least one-half of the compressor governor cutout pressure.
- b. The pressure gauge indicating the pounds per square inch available for braking is missing, inoperative or inaccurate.
- c. Any air leak discovered in the brake system.

Vacuum Brakes:

- a. A warning signal, audible or visible, fails to operate continuously whenever the vacuum in the supply reservoir is less than 8 inches of mercury.
- b. The vacuum gauge indicating the inches of mercury available for braking is missing, inoperative or inaccurate.

Emergency Equipment. Reject if:

Fire Extinguisher:

- a. It is not fully charged.
- b. Not securely mounted in a location readily accessible.
- c. It is not of the required size or class. (one 5 B:C or two 4 B:C extinguishers)
- d. Not marked or labeled with its Underwriters Laboratories rating.

Reflective Triangles: Reject if:

- a. If there is not at least three operable reflectors.
- b. They are not protected by enclosure in a box, rack, or other container specially designed and constructed for readily use.
- c. They are not of a type specified in CRF Part 393.95.

## **PASSENGER COMPARTMENT:**

Lighting. Reject if:

- a. Step lights do not operate.
- b. Aisle or under seat lighting does not operate.
- c. Restroom "low intensity" light inoperative.
- d. Restroom emergency indicator inoperative, if so equipped.

Flooring. Reject if:

- a. Floor damage allowing road debris or exhaust to enter interior compartment.
- b. Any carpet or molding could cause trip hazard.
- c. Oil or grease accumulation on a traction surface.
- d. Step structure is not sufficient to support weight.

Seating. Reject if:

- a. Torn upholstery that exposes sharp metal or springs.
- b. Seating is not securely attached.
- c. Adjustment mechanisms are not operating properly.
- d. Foot rests will not stay in the up position.

Emergency exits. Reject if:

- a. Instruction decals are missing or defaced.
- b. Missing the proper number of exits.
- c. Exits will not operate properly.
- d. Exits open too easily or will not stay shut.
- e. Emergency door not identified with operable red lamp.
- f. Obstructions that would interfere with escape.

Windows. Reject if:

- a. Separated crack or shattered glass is exposed to passengers.
- b. Window tinting that exceeds specifications defined under the Michigan Vehicle Code being Public Act 300.
- c. Glazing is other than a type specified in C.F.R. 393.61.

Interior Miscellaneous. Reject if:

- a. Loose ceiling or side panels are present.
- b. Sharp molding or other parts are present.
- c. Loose interior accessories are present. (T.V. monitors, glasses, lamps, etc.)

Standee Line. Reject if:

- a. Line is not present or not in a contrasting color.
- b. Warning information sign is missing or defaced..

Doors. Reject if:

- a. Missing
- b. Emergency release is inoperative.
- c. Door can not operate properly.
- d. Lock can not be readily released.

## EXTERIOR:

Marking of motor vehicles. The markings must display the following information::

- a. The legal name or single trade name of the motor carrier operating the motor vehicle.
- b. The USDOT number is missing from both sides if carrier is interstate licensed.

Size, Shape, Location, and Color of Marking. The marking must:

- a. Appear on both sides of the self propelled commercial motor vehicle.
- b. Be in letters that contrast sharply in color with the background on which the letters are placed.
- c. Be readily legible, during daylight hours, from a distance of 50 feet while the commercial motor vehicle is stationary.
- d. Be kept and maintained in a manner that retains the legibility required by paragraph (c) of this section.

Lighting. Reject if any fail to operate or lack the proper color lens:

- a. Headlamps, high and low beams.
- b. Turn signal lamps.
- c. Identification and clearance lamps.
- d. Back up lamp(s).
- e. License plate lamp.
- f. Tail lamps.
- g. Side marker lamps.
- h. Hazard warning flashing lamps.
- i. Stop lamps.

Reflectors. Reject if missing or lack the proper color lens:

- a. Rear.
- b. Front side.
- c. Rear side.
- d. Center (if over 30' length).
- e. Any reflector not marked with the letters SAE-A.

Tires: Reject if:

- a. Any tire, other than a steering axle, with less than 2/32 inch tread when measured at any point on a major groove excluding wear strips.
- b. Any tire on a steering axle with less than 4/32 inch tread when measured at any point on a major tread groove.
- c. Any part of ply, belt, or cord is exposed.
- d. There is any bump, bulge or separation.
- e. Tire is marked "not for highway use" or any similar designation.
- f. There are other conditions or markings reasonable believed to render the tire as unsafe.
- g. Front tire is retreaded, recapped or re-grooved.
- h. Tires used on same axle are not same size or type of construction. (Mixed bias, belted, radial or snow).
- i. Tire is flat or has an audible leak.
- j. Any tire carries a greater weight than is specified on the tire.
- k. Any tire is not properly inflated.

Wheels and Attachments. Reject if:

- a. Wheels and rims that are cracked or broken.
- b. Stud or bolt holes are elongated.
- c. Nuts or bolts are missing or loose.

Fuel Tank Filler and Cap. Reject if:

- a. Cap is not present.
- b. Cap does not fit or seal is missing or damaged.
- c. Fill pipe opening is located inside passenger or cargo compartment.
- d. Fuel can spill onto exhaust or electrical system.

Battery Compartment. Reject if:

- a. Battery cover is missing.
- b. Battery cables are worn or frayed.
- c. Accessory feeds or power taps are not overload protected.
- d. Battery is cracked or leaking.
- e. Battery is not protected from terminals shorting out by excess movement.

Engine Compartment. Reject if:

- a. Oil, fuel or coolant lines or hoses are leaking or damaged.
- b. Drive belts are cracked, frayed, oil soaked, or damaged.
- c. Power steering system leaks.
- d. Accelerator return springs are missing or worn.
- e. Throttle will not return properly.
- f. Motor mounts are broken or worn to allow excessive movement.
- g. Master cylinder fluid level is more than 1/4" from top.
- h. Brake fluid reservoir is leaking or damaged.
- i. Brake fluid reservoir fluid is contaminated.

Bumpers. Reject if:

- a. Bumper is not firmly attached to frame or chassis.
- b. Bumper is not within 30 inches above a level ground.
- c. Bumper is less than 18 inches from the widest part of the bus.
- d. Bumper extends beyond the widest part of the vehicle.

## UNDERBODY:

Suspension. Reject if:

- a. Axle positioning part is cracked, broken, loose or missing.
- b. Axle is not in proper alignment.
- c. Any leaf spring is cracked, broken, missing or shifted out of position.
- d. Coil spring is cracked or broken.
- e. Torsion bar or system is cracked or broken.
- f. Air system is worn, damaged or leakage is greater than 3 psi in a 5 minute period.
- g. Air is allowed into suspension system before at least 55 psi is in the braking system.

Steering. Reject if:

- a. Steering universal joints are worn, faulty or repaired by welding.
- b. Steering gear box is loose or has an obvious welded repair or missing mounting bolts.
- c. Steering gear box or mounting bracket is cracked.
- d. Pitman arm on the steering gear is loose.
- e. Steering system does not turn freely through limit.
- f. There is any movement under steering load of a stud nut.
- g. Any motion, other than rotational, between any linkage member and its attachment point of more than 1/8 inch.
- h. Loose clamp or clamp bolt on tie rod or drag link.
- i. Any looseness of any threaded joint.
- j. Linkage components are not secured with proper pins or devices.
- k. Power steering leaks.

Brakes. Reject if:

- a. Air or hydraulic leaks are present.
- b. Any brake part is missing, excessively worn or broken.
- c. There is not braking action at any wheel.
- d. Any brake hose or tubing leak, restricted, insecurely fastened or retained, improperly joined or has exposed cords showing.
- e. Any brake hose or tubing contacts a wheel, tire, steering, component or frame.
- f. Brake lining is cracked, loose, broken, missing, not firmly attached to shoe, contaminated with oil, fluid or grease.
- g. Brake drum is scored greater than .060 inches.
- h. Brake drum that has a thickness less than the minimum stamped on the assembly or as stated by the manufacturer.
- i. Brake drum that is broken or has a crack extending to an open edge.
- j. Air drum brake lining thickness is less than 1/4 inches at shoe center or to the wear line if so marked.
- k. Hydraulic or electric drum brake lining thickness is less than 1/16 inches at shoe center.
- l. Disc brake lining is less than 1/8 inches at thinnest point.
- m. There is a mismatch of air chamber sizes or slack adjuster lengths on an axle.
- n. Any non-manufactured holes or cracks in the spring brake housing section of a parking brake.
- o. Brake chamber push rod travel exceeds the manufacturer's maximum stroke allowance as follows:

### BOLT TYPE BRAKE CHAMBER DATA

Type	Effective Area (sq. in)	Outside Dia. (in.)	Maximum Stroke at Which Brakes Should Be Readjusted
A . . . . .	12	6 15/16	1 3/8
B . . . . .	24	9 3/16	1 3/4
C . . . . .	16	8 1/16	1 3/4
D . . . . .	6	5 1/4	1 1/4
E . . . . .	9	6 3/16	1 3/8
F . . . . .	36	11	2 1/4
G . . . . .	30	9 7/8	2

### ROTOCHAMBER DATA

Type	Effective Area (sq. in)	Outside Dia. (in.)	Maximum Stroke at Which Brakes Should Be Readjusted
9 . . . . .	9	4 9/32	1 1/2
12 . . . . .	12	4 13/16	1 1/2
16 . . . . .	16	5 13/32	2
20 . . . . .	20	5 15/16	2
24 . . . . .	24	6 13/32	2
30 . . . . .	30	7 1/16	2 1/4
36 . . . . .	36	7 5/8	2 3/4
50 . . . . .	50	8 7/8	3

### CLAMP TYPE BRAKE CHAMBER DATA

Type	Effective Area (sq. in)	Outside Dia. (in.)	Maximum Stroke at Which Brakes Should Be Readjusted
6 . . . . .	6	4 1/2	1 1/4
9 . . . . .	9	5 1/4	1 3/8
12 . . . . .	12	5 11/16	1 3/8
16 . . . . .	16	6 3/8	1 3/4
20 . . . . .	20	6 25/32	1 3/4
24 . . . . .	24	7 7/32	1 3/4
30 . . . . .	30	8 3/32	2
36 . . . . .	36	9	2 1/4



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‘LONG STROKE’ CLAMP TYPE BRAKE CHAMBER DATA

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Type	Effective Area (sq. in)	Outside Dia. (in.)	Maximum Stroke at Which Brakes Should Be Readjusted
12. ....	12	5 11/16	1 3/4
16. ....	16	6 3/8	2
20. ....	20	6 25/32	2
24. ....	24	7 7/32	2
24* . ....	24	7 7/32	2 1/2
30. ....	30	8 3/32	2 1/2

\* For 3" maximum stroke type 24 chambers

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Frame. Reject if:

- a. Frame or frame member supporting a functional component is cracked, loose, sagging or broken.
- b. Holes have been drilled in the top or bottom rail flanges, except as specified by the manufacturer.
- c. Frame components are missing, cracked, rotten, broken, loose or in deteriorated condition.

Drive Shaft. Reject if:

- a. Universal joints show excessive wear.
- b. Shaft safety guard is missing or ineffective.

Exhaust System. Reject if:

- a. Any part of the system is temporarily repaired with wrap or patches.
- b. There is loose or leaking joints.
- c. There are holes, cracks, or leaking seams.
- d. A muffler cutout or similar device is present.
- e. Any part of the system passes through the passenger compartment.
- f. System is not securely fastened with proper clamps and hangers.
- g. Exposed system does not have adequate heat shields or protective system to protect damage to electrical wiring, fuel supply, or other combustible part of the vehicle.
- h. Exhaust discharges immediately below the fuel tank or fuel filler pipe.
- i. Exhaust discharges at or within 6 inches forward of the rearmost part of a bus powered by a gasoline engine.
- j. Exhaust discharges at or within 15 inches forward of the rearmost part of the bus or to the rear of all doors or windows designed to be opened, except emergency exits, on a bus powered by fuels other than gasoline.

Fuel System. Reject if:

- a. There is fuel leakage at any point in the system.
- b. Any part of the fuel system is not securely fastened.
- c. Any fuel tank or line not specifically designed or manufactured in accordance with C.F.R. 393, Subpart E.
- d. Any fuel line is contacting high temperature surfaces or moving parts.
- e. Fuel tank or line intrudes into or above any driver or passenger compartment.
- f. Any part of the fuel tank is forward of the front axle.
- g. Any part of the system extends beyond the widest part of the bus.

**ROAD/BRAKE TEST** (if required):

GENERAL. Reject if:

- a. There is any malfunction of braking or steering response mechanism, particularly steering shimmy, wander, pulling or any other operating behavior that affects safe operation.
- b. Speedometer is inoperative or inaccurate.
- c. Brake performance exceeds the following:

- 1. Manufacturer's gross weight of 10,000 lbs or less

	Service Brake	Emergency Brake
Stopping dist. At 20 mph . . . .	25'	66'
Decelerometer reading . . . . .	17	

- 2. All Others:

Stopping dist. At 20 mph . . . .	35'	85'
Decelerometer reading. . . . .	14	